

Electro-Voice®

a gulton company

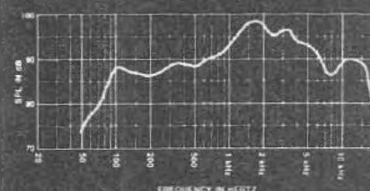


FIGURE 1 — Axial Frequency Response 4 volts/10 feet

Musicaster™ 100

All-Weather Voice and Music Speaker System

SPECIFICATIONS

Frequency Response, 10 Feet on Axis,
Swept-One-Third-Octave Pink Noise,
Half-Space Anechoic Environment
(see Figure 1):

90-18,000 Hz

Low-Frequency 3-dB-Down Point:

90 Hz

Usable Low-Frequency Limit
(10-dB-Down Point):

80 Hz

Half-Space Reference Efficiency:

1.0%

Long-Term Average Power Handling
Capacity at 8 Ohms (see Power Handling
Capacity section):

60 watts

Maximum Woofer Acoustic Output:

0.6 watts

Sound Pressure Level at 1 Meter
1 Watt Input, Anechoic Environment,
Band-Limited Pink Noise Signal,
300 to 2,000 Hz:

99 dB

Sound Pressure Level, Full Power
(60 watts) at 4 Feet, Octave Band of
Random Noise Centered Around 2,000 Hz:

120 dB

Dispersion Angle Included by 6-dB-Down
Points on Polar Responses, Horizontal and
Vertical Planes, Indicated One-Third-Octave
Bands of Pink Noise,

250-1,000 Hz:

130° ± 40°

1,000-10,000 Hz:

75° ± 20°

10,000-20,000 Hz:

65° ± 20°

Directivity Factor R_s (Q), 1,800-16,000 Hz
Median (see Figure 4):

19.9 (+15.6, -10.3)

Directivity Index D_i , 1,800-16,000 Hz

Median (see Figure 4):

25.9 dB (+5.1, -0.25)

Distortion, 0.1 Full Power Input
(see Figure 5),

Second Harmonic,

100 Hz: 1.0%

1,000 Hz: 0.2%

10,000 Hz: 1.8%

Third Harmonic,

100 Hz: 1.0%

1,000 Hz: 0.3%

10,000 Hz: 0.1%

Distortion, 0.01 Full Power Input
(see Figure 6),

Second Harmonic,

100 Hz: 0.4%

1,000 Hz: 0.1%

10,000 Hz: 0.4%

Third Harmonic,

100 Hz: 0.8%

1,000 Hz: 0.1%

10,000 Hz: 0.1%

Transducer Complement:

12-inch woofer

1½-inch Super-Dome™ tweeter coupled to
5-inch Direktor™

Crossover Frequency:

1,500 Hz

Crossover Slope:

12 dB per octave

Impedance,

Nominal:

8 ohms

Minimum:

5.3 ohms

Input Connections:

Screw terminals (#8-32) on barrier strip

Enclosure Material:

One-piece
molded polyethylene

Color:

All-weather green, paintable

Weather Resistance

(see Description section for details):

Environmentally resistant parts with
foam water shield over transducers,
completely sealed enclosure

Mounting:

U-bracket hardware supplied. Three-point
suspension also possible using supplied
threaded suspension points.

Optional Accessories:

TK60 60-watt 25-volt/70.7-volt
line-transformer kit

Dimensions:

44.5 cm (17.5 in.) high

44.5 cm (17.5 in.) wide

21.6 cm (8.5 in.) deep

Net Weight:

11.2 kg (24.6 lb)

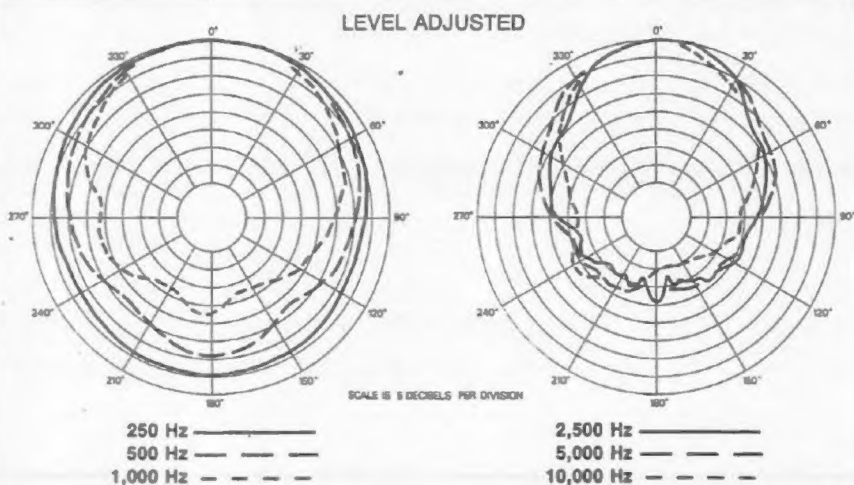
Shipping Weight:

13.2 kg (29.0 lb)

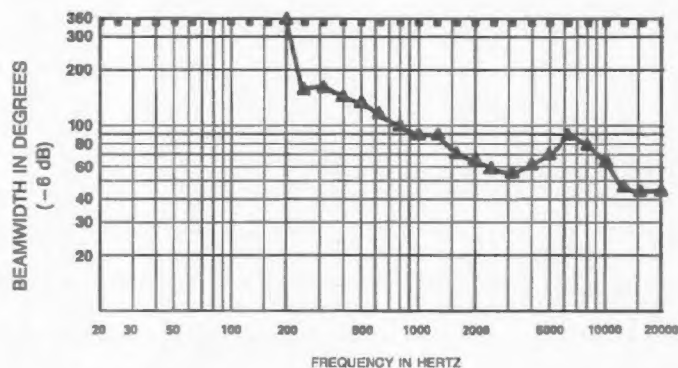
DESCRIPTION

The Electro-Voice Musicaster™ 100 is a compact, high-fidelity speaker system ideally suited for voice projection and music reproduction in a wide variety of applications, especially those in adverse environmental conditions.

Exceptional voice intelligibility and musical balance is provided by the Musicaster's unique 12-inch coaxial design, which incorporates a Super-Dome™ tweeter coupled to a constant-directivity, coaxial Direktor™ horn. Crossing over at 1500 Hz, this design assures wide, even dispersion through the critical intelligibility range. As a result intelligible, well-balanced sound may be heard over the full rated beamwidth. In



**FIGURE 2 — Polar Response ($\frac{1}{3}$ -octave pink noise 4 volts/10 feet)
Horizontal and Vertical are Identical**



**FIGURE 3 — Beamwidth vs Frequency Whole Space (anechoic)
From $\frac{1}{3}$ -Octave Polars**

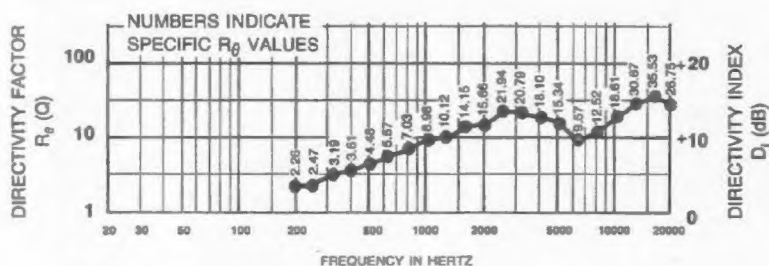


FIGURE 4 — Directivity vs Frequency Whole Space (anechoic)

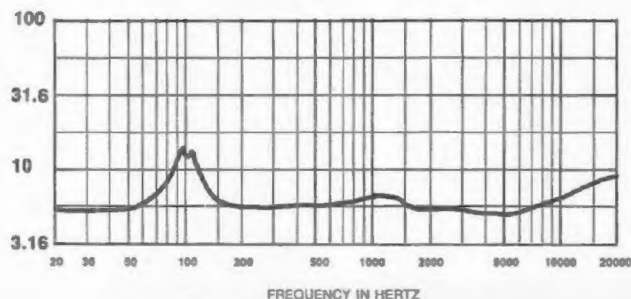


FIGURE 5 — Impedance vs Frequency

addition, its 99 dB sensitivity (1w/1M) and 60-watt power-handling give the Musicaster™ 100 enough output capability even for very-high-noise environments.

The enclosure is constructed of one-piece molded polyethylene, a method of enclosure construction pioneered by Electro-Voice with the introduction of the Model 100S Entertainer® speaker system. This process results in a sealed enclosure that provides an impervious barrier to the elements while exhibiting excellent sonic performance, very low weight, and exceptional durability. The enclosure is finished in all-weather green and is specially treated to enable the cabinet to be easily painted in the field.

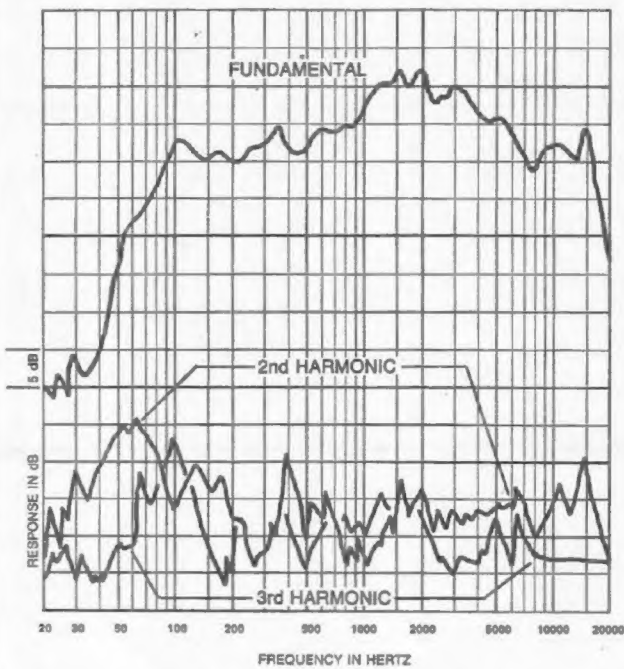
For permanent installations the Musicaster 100 may be conveniently mounted using one of several methods possible with the hardware supplied. Its impedance is 8 ohms and is easily convertible to high impedance operation using the optional TK60 transformer kit. Its light weight, unobtrusive appearance and small size make the Musicaster 100 the perfect choice for a wide range of applications.

All parts of the Musicaster 100 are weatherproof and fungusproof for reliable operation under all weather conditions. The Musicaster 100 may be used indoors or out, in homes, schools, pool areas, theme parks, carnivals and amphitheatres, and as portable sound systems for auctioneers, performing groups and others. Anywhere wide-range, clear intelligible sound is required, the Musicaster 100 will be a reliable performer.

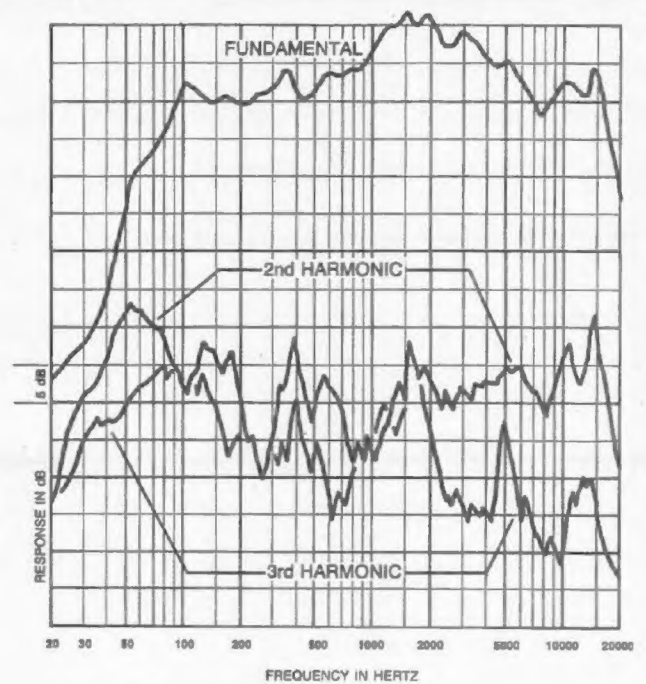
INSTALLATION INSTRUCTIONS

For mounting near a wall, ceiling, post or other surface, the supplied U-bracket mounting system may be used. To mount the system using this method, remove the wingnuts and U-bracket from the enclosure, mount the U-bracket in the desired position, then replace the Musicaster and wingnuts on the secured bracket. The mounting studs will help to support the unit while the wingnuts are replaced. The unit may be secured by finger-tightening the wingnuts. However, for installations requiring more tamperproof mounting, the wingnuts may be replaced with standard $\frac{1}{4}$ -20 nuts.

For installations in which the U-bracket system is impractical or inconvenient, the three-point suspension system of mounting may be employed. The enclosure is supplied with three threaded inserts which allow hanging with chains. The user must supply standard $\frac{1}{4}$ -20 eyelet bolts, "S" hooks and chains. Typical mounting arrangements are illustrated in Figure 8.



**FIGURE 6 — Harmonic Distortion,
0.01 Rated Power Input (.6 watt)**



**FIGURE 7 — Harmonic Distortion,
0.1 Rated Power Input (6 watts)**

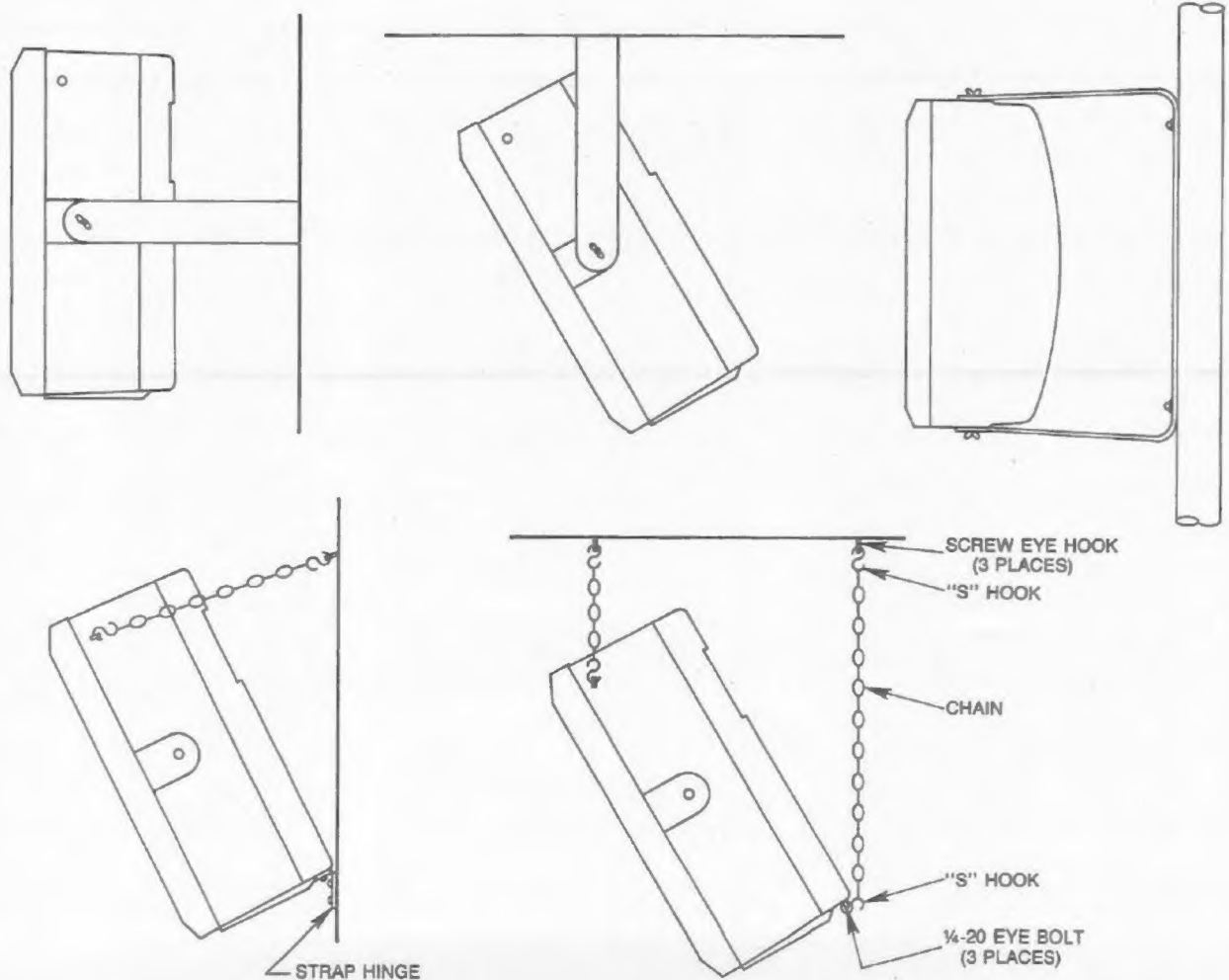


FIGURE 8 — Mounting Variations

LINE-TRANSFORMER KIT

The TK60 (25/70.7 volt) line-transformer kit is an option available for high-impedance systems, generally desired in multi-speaker distributed designs and some smaller systems where long speaker-wire runs are necessary. An Electro-Voice TM60 transformer is mounted on an input panel that is substituted for the direct (8 ohms) input panel supplied with the system. The TK60 allows direct input to the system or access to any of the seven transformer taps covering 7.5, 15, 30, and 60 watts at 25 and 70.7 volts. Connections are made on barrier strips with #8-32 screws.

POWER HANDLING CAPACITY

To our knowledge, Electro-Voice was the first U.S. manufacturer to develop and publish a power test closely related to real-life conditions. First, we use a random noise input signal because it contains many frequencies simultaneously, just like real voice or instrument program. Second, our signal contains more energy at extremely high and low frequencies than typical actual program, adding an extra measure of reliability. Third, the test signal includes not only the overall "long-term average" or "continuous" level — which our ears interpret as loudness — but also short-duration peaks which are many times higher than the average, just like actual program. The long-term average level stresses the speaker thermally (heat). The instantaneous peaks test mechanical reliability (cone and diaphragm excursion). Note that the sine wave test signals sometimes used have a much less demanding peak value relative to their average level. In actual use, long-term average levels exist from several seconds on up, but we apply the long-term average for several hours, adding another extra measure of reliability.

Specifically, the Musicaster 100 is designed to withstand the power test described in the revised EIA Standard RS-426A. The EIA test spectrum is applied for eight hours. To

obtain the spectrum, the output of a white noise generator (white noise is a particular type of random noise with equal energy per bandwidth in Hz) is fed to a shaping filter with 6-dB-per-octave slopes below 40 Hz and above 318 Hz. When measured with the usual constant-percentage bandwidth analyzer (one-third-octave), this shaping filter produces a spectrum whose 3-dB-down points are at 100 Hz and 1200 Hz with a 3-dB-per-octave slope above 1200 Hz. This shaped signal is sent to the power amplifier with the continuous power set at 60 watts into the 6 ohms EIA equivalent impedance, (24.5 volts true RMS). Amplifier clipping sets instantaneous peaks at 6 dB above the continuous power, or 240 watts peak (43.8 volts peak). This procedure provides a rigorous test of both thermal and mechanical failure modes.

ARCHITECTS' AND ENGINEERS' SPECIFICATIONS

The speaker system shall consist of a 12-inch coaxial speaker combination in a paintable one-piece molded polyethylene enclosure. The complete system shall be weatherproof. It shall exhibit 90-18,000 Hz frequency response and a sensitivity of no less than 99 dB (1w/1M, 300-2,000 Hz band-limited pink noise). The system shall be capable of handling 60 watts of power by the test described in the revised EIA Standard RS-426A. It shall produce vertical and horizontal beamwidths (6-dB-down included angle) of 75 degrees, deviating no more than 20 degrees from this angle over the frequency range 1,000-10,000 Hz. The speaker system shall be 44.5 cm (17.5 in.) high by 44.5 cm (17.5 in.) wide by 21.6 cm (8.5 in.) deep (not including mounting apparatus). It shall weigh no more than 11.2 kg (24.6 lb).

The speaker system shall be the Musicaster™ 100 all-weather voice and music speaker system.

WARRANTY (Limited)

Electro-Voice Speakers and Speaker Systems (excluding active electronics) are guaranteed for five years from date of original purchase against malfunction due to defects in workmanship and materials. If such malfunction occurs, unit will be repaired or replaced (at our option) without charge for materials or labor if delivered prepaid to the proper Electro-Voice service facility. Unit will be returned prepaid. Warranty does not extend to finish, appearance items, burned coils, or malfunction due to abuse or operation under other than specified conditions, including cone and/or coil damage resulting from improperly designed enclosures, nor does it extend to incidental or consequential damages. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above exclusion may not apply to you. Repair by other than Electro-Voice or its authorized service agencies will void this guarantee. A list of authorized warranty service agencies is available from Electro-Voice, Inc., 600 Cecil Street, Buchanan, MI 49107 (AC/616-695-6831); Electro-Voice, Inc., 3810 148th Avenue N.E., Redmond, WA 98052 (AC/206-881-9555); and/or Electro-Voice West, 8234 Doe Avenue, Visalia, CA 93291 (AC/209-651-7777). This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

Service and repair address for this product: Electro-Voice, Inc., 600 Cecil Street, Buchanan, Michigan 49107.

Specifications subject to change without notice.



ELECTRO-VOICE, INC., 600 Cecil Street, Buchanan, Michigan 49107

MANUFACTURING PLANTS AT ■ BUCHANAN, MI ■ NEWPORT, TN ■ SEVIERVILLE, TN ■ REDMOND, WA ■ GANANOQUE, ONT
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